AMENDMENTS TO THE CLAIMS

This listing of claims will replace all previous versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A method for making a tissue engineering scaffold for inducing formation of extracellular matrix by cells bound to the scaffold comprising covalently coupling matrix-enhancing molecules to the scaffold in an effective density to elicit production of extracellular matrix without increasing cellular proliferation, wherein when the matrix-enhancing molecules are TGF-β, the TGF-β is covalently coupled to the matrix by a polymer tether having a molecular weight between 2000 and 6000 and is in a density between 1 and 100 ng TGF-β/ml or in a concentration of between about 4×10^{-6} and 4 x 10-3 nmol/ml.

Claim 2 (Original): The method of claim 1 further comprising attaching cells to the scaffold.

Claim 3 (Original): The method of claim 1 wherein the matrix-enhancing molecules are angiotensin II.

Claim 4 (Original): The method of claim 1 wherein the matrix-enhancing molecules are insulin-like growth factor.

Claim 5 (Original): The method of claim 1 wherein the matrix-enhancing molecules are ascorbic acid.

Claim 6 (Cancelled).

Claim 7 (Original): The method of claim 1 wherein the scaffold is a hydrogel.

Claim 8 (Original): The method of claim 7 wherein the hydrogel is formed of a polymer selected from the group consisting of alginate, collagen, hyaluronic acid, and polyethylene glycol polymers.

Claim 9 (Original): The method of claim 7 wherein the matrix-enhancing molecules are TGF-β coupled to the hydrogel in a concentration of between about 4×10^{-6} and 4×10^{-3} nmol/ml.

Claims 10-23 (Cancelled).

Claim 24 (New): A method for making a tissue engineering scaffold, the method comprising:

providing a scaffold, a polymer tether, and a matrix-enhancing molecule;

covalently coupling the polymer tether to the scaffold; and

covalently coupling the matrix-enhancing molecule to the scaffold, wherein the matrix-enhancing molecule is present at a concentration sufficient to elicit production of extracellular matrix by a cell attached to the tissue engineering scaffold without increasing cellular proliferation of the attached cell.

Claim 25 (New): The method of claim 24 further comprising providing a cell attached to the tissue engineering scaffold.

Claim 26 (New): The method of claim 24 further comprising providing a cell attached to the tissue engineering scaffold, wherein the cell is attached to the tissue engineering scaffold by constraining the cell within the scaffold.

Claim 27 (New): The method of claim 24 further comprising providing a cell attached to the tissue engineering scaffold, wherein the cell is selected from the group consisting of smooth muscle cells, endothelial cells, fibroblasts, chondrocytes, and combinations thereof.

Claim 28 (New): The method of claim 24 wherein the matrix enhancing molecule is TGF-β.

Claim 29 (New): The method of claim 24 wherein the matrix enhancing molecule is TGF-β and the TGF-β is present at a density of between 1 and 100 ng TGF-β/ml or in a concentration of between about 4×10^{-6} and 4×10^{-3} nmol/ml.

Claim 30 (New): The method of claim 24 wherein the matrix-enhancing molecule is angiotensin II.

Claim 31 (New): The method of claim 24 wherein the matrix-enhancing molecule is insulin-like growth factor.

Claim 32 (New): The method of claim 24 wherein the matrix-enhancing molecule is ascorbic acid.

Claim 33 (New): The method of claim 24 wherein the scaffold is a hydrogel.

Claim 34 (New): The method of claim 24 wherein the scaffold is a hydrogel comprising a polymer selected from the group consisting of alginate, collagen, hyaluronic acid, polyethylene glycol polymers, and combinations thereof.

Claim 35 (New): The method of claim 24 wherein the polymer tether has a molecular weight between 200 and 10,000.